Joint Project Manager Information Systems (JPM IS)

Joint Program Executive Office for Chemical and Biological Defense

JPM Information Systems Overview

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Mission & Vision

- **MISSION: Responsible for providing the information architecture and applications for shaping the battlespace against the Chemical, Biological, Radiological and Nuclear (CBRN) threat.**

- **VISION: Provide the Warfighter with the most effective integrated early warning capability; a cutting-edge DoD accredited CBRN hazard prediction model; and state-of-the-art biosurveillance situational awareness, collaboration, and analysis tools resulting in optimized decision support capability for Commanders across all operational levels from tactical to strategic as well as bridging the interoperability gap from DoD to Interagency.**

JPM Information Systems Products

- **JPM IS - Building the enterprise solution to provide the common warning and reporting, hazard prediction and decision support backbone for the collection, analysis and dissemination of Chemical, Biological, Radiological and Nuclear information**

- **The Joint Warning and Reporting Network (JWARN), the Joint Effects Model (JEM), the Biosurveillance Portal (BSP) and utilization of consequence management and decision support systems will provide the data and services optimizing decision support capability for commanders across all operational levels from the tactical to strategic as well as bridging the interoperability gap from DOD to civil agencies**

- **These services include:**
  - **Integrated warning and reporting**
  - **Managed sensor networks**
  - **Hazard modeling and prediction, depiction and avoidance**
  - **Biological and Medical Surveillance**
  - **Incident management, decision support and consequence management**

End-to-End CBRN Capabilities

Providing CBRN data and services to stakeholders across all levels of command, optimizing decision support, and shared situational awareness across DoD and HD.
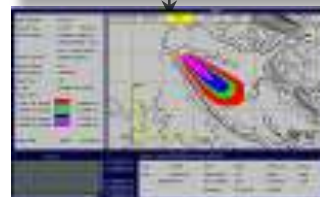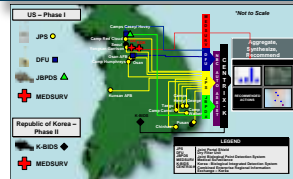
Sensors and Systems

Warning, Reporting, and Dissemination of CBRN Information

Hazard Analysis and Predictions

Decision Support/Incident Management

Common Enterprise Standards, Protocols, Information Assurance, Architecture

Enterprise solutions supporting collection, analysis, and dissemination of actionable CBRN information

Joint Effects Model (JEM)

- JEM provides the single DOD-approved and accredited methodology to model a common representation of CBRN hazard areas and effects resulting from CBRN events and TIC/TIM incidents

- Using weather, terrain, agent characteristics, and advanced physics modeling, JEM provides an enhanced situational awareness of the operational environment for decision support and risk mitigation

- JEM models CBRN hazard transport and dispersion, ground contamination, and resultant human physiological effects for:
  - Chemical-Biological Weapon Strikes
  - Chemical-Biological Facility Strikes
  - Nuclear Weapon Detonation
  - Nuclear Weapon Incidents
  - Radiological Weapon Detonation
  - Chemical Weapon Storage Incidents
  - High Altitude Release
  - TIC/TIM Releases
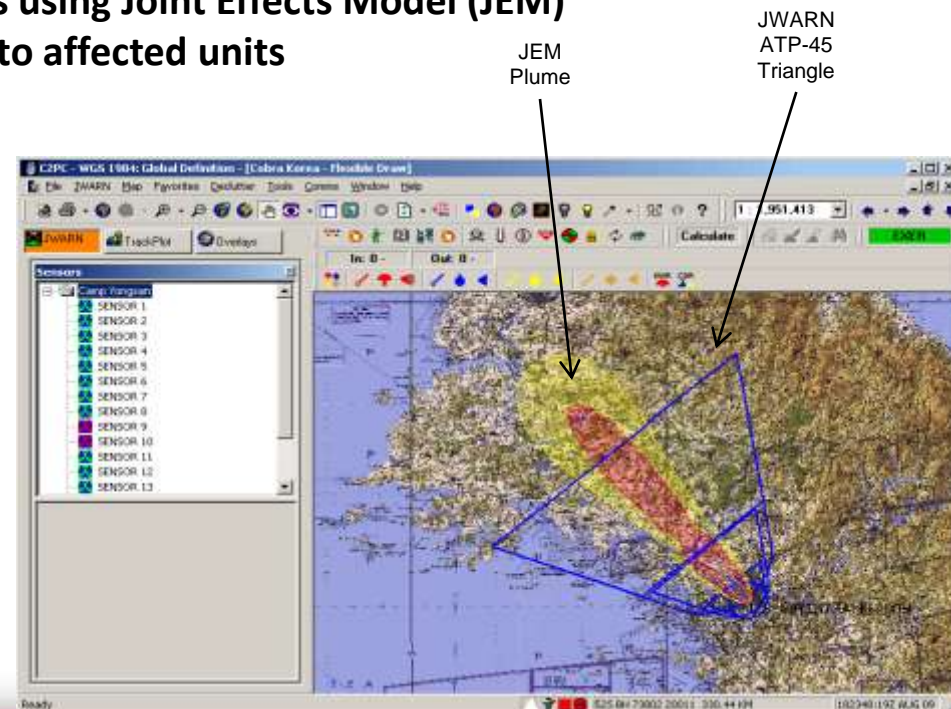
JEM Increment 2 Modernization

Inputs

Outputs

Joint Warning and Reporting Network (JWARN)

Provides Joint Force Commander (JFC) with the capability to:

- **Report CBRN and Toxic Industrial Materials (TIMs) hazard detection**
    - **Collect, generate, edit, and disseminate NBC plots on C2 platforms to provide a Common Operational Picture (COP) for the Warfighter**
    - **Collect, generate, edit, and disseminate NBC reports (NBC-1/NBC-4)**
- **Analyze detections to enable identification of the hazard and plot affected locations**
    - **Auto generation of ATP-45 hazard warning area**
    - **Generation of more detailed hazard area plots using Joint Effects Model (JEM)**
- **Disseminate warning and de-warning information to affected units**
- **Auto retrieval and archiving of event data to enable post operations forensic evaluation**
- **Control and configure a local sensor network (LSN)**
    - **Interfaces with sensor detectors:**
        - **M22 (ACADA)**
        - **ADM-300A**
        - **AN/VDR-2**
        - **M8A1**
        - **JCAD**
        - **M21 (RSCAAL)**
        - **JSLSCAD**

JEM Plume

JWARN ATP-45 Triangle
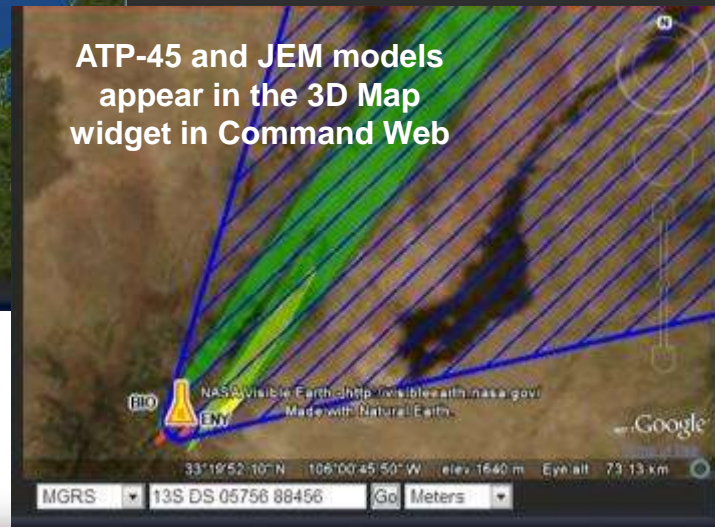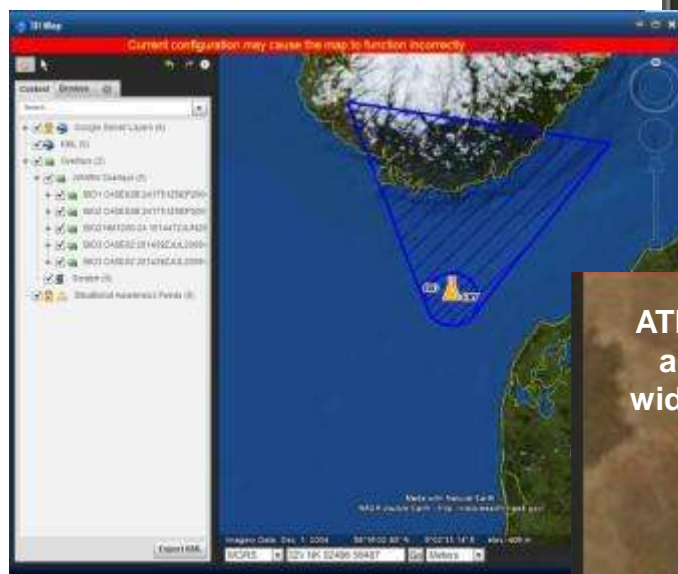
JWARN Increment 1 Modernization

- **Migrate JWARN capabilities into a Web Application meeting the Army's architecture implementation**

- **Update of ATP-45 standards**

- **Incorporation of Common CBRN Sensor Interface (CCSI) standards ("plug and play" capability)**
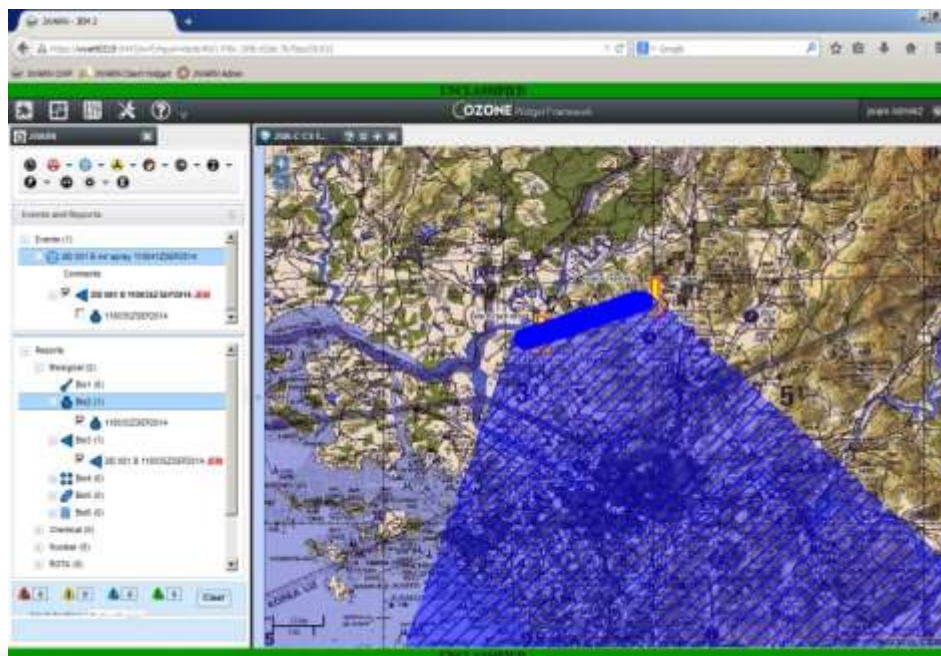
JWARN Web Application

- **Intended to replace JWARN 1F upon Army removal of the Maneuver Control System**

- **JWARN Web App recently underwent FOTE at the Army's NIE 14.1**

- **JWARN Web App required to conduct FOT&E-4 test (UFG 14) to support fielding in US Army CS 11-12 architecture**

JWARN and 3D Map Widgets On Command Web

ATP-45 and JEM models appear in the 3D Map widget in Command Web

Biosurveillance Portal (BSP)

- **Single integrated and collaborative biosurveillance environment**

- **All-hazards capable**

- **Unclassified/NIPR**

- **Globally deployed**

- **Multi-functional user base**
  - **CCMDs (Surgeon, J5, J3, J2)**
  - **Super users**
  - **Periodic users**

- **Supports Interagency and International partners**

- **Web-based, cloud-hosted Ozone Widget Framework (OWF) platform**
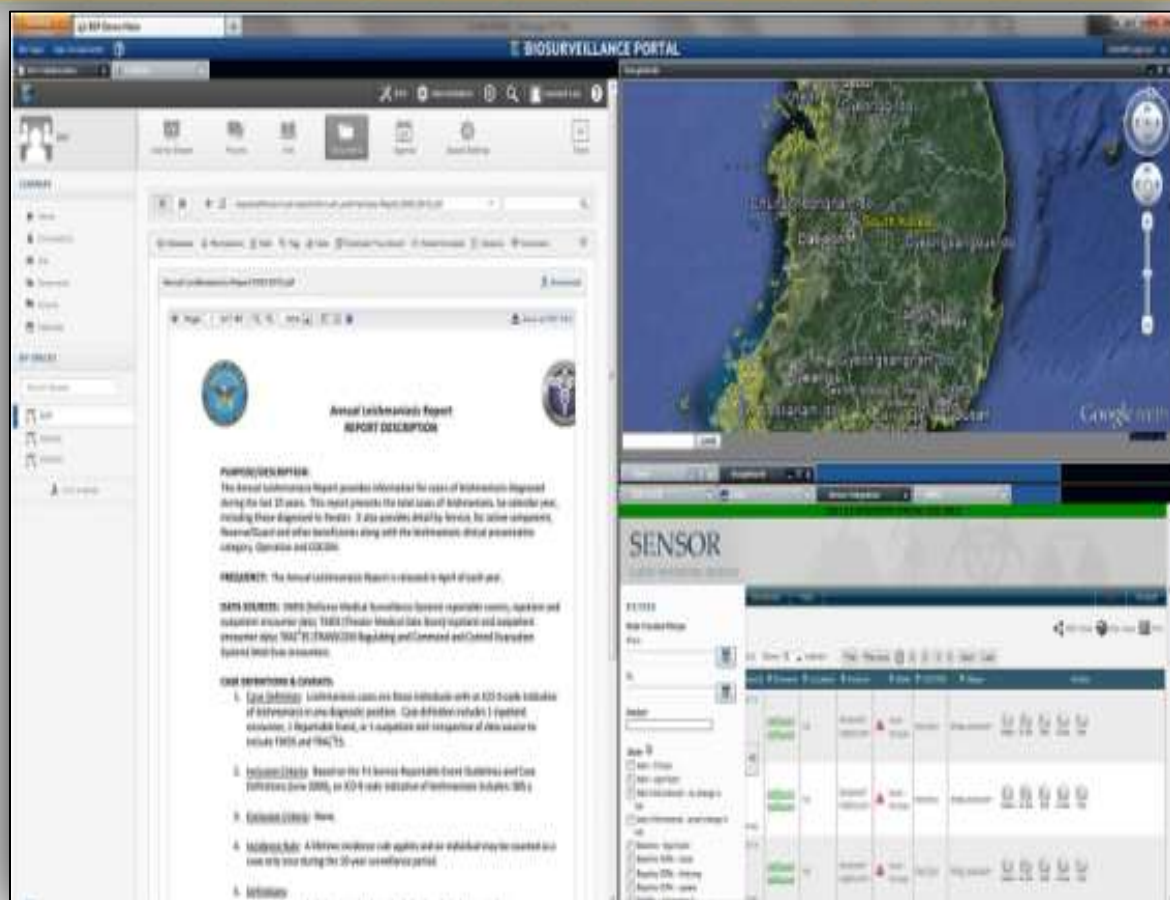
A single well-integrated effective National Biosurveillance Enterprise

Biosurveillance Portal Capabilities

Data Visualization
- Disease Activity
- Sensors
- Demographics
- Facilities

Analysis Tools
- Epidemiological Analysis
- Medical/Electronic Health Record
- Social Media Analysis
- Health Risk Management

Library
- CBRN/Public Health Reporting
- Disease Risk Assessments
- CBRN Knowledge Databases
- BSV Resources Directory
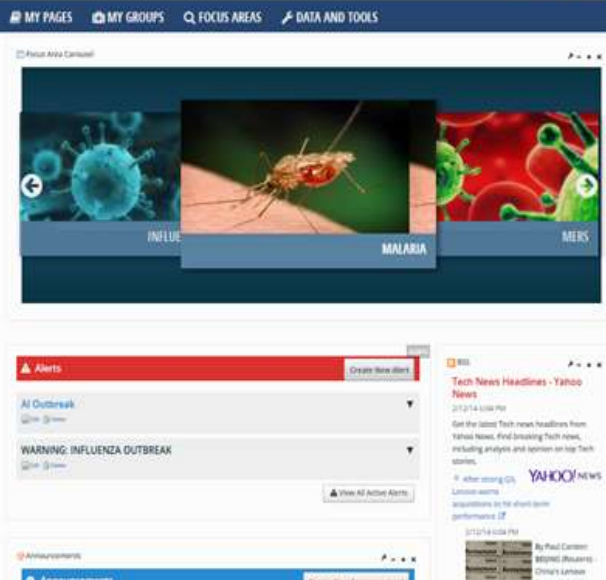
Collaboration
- Chat
- Directories
- Mass Notification
- Alerts

Focus Areas
- Emerging Disease Events
- Recurring Disease Events
- Crisis Events

Modeling & Simulation
- CBRN Plume Modeling
- Predictive Models
- Event/Disease Forecasts
- Impact Projection Models

Authenticated Data Sources

Advanced Analytics

An Integrated Biosurveillance Environment

Portal User Concept & Interface
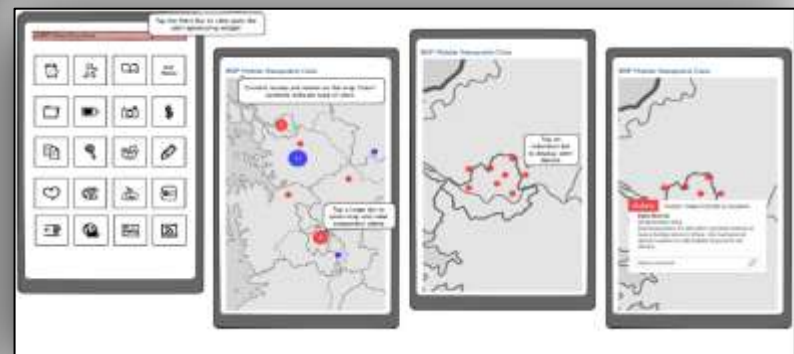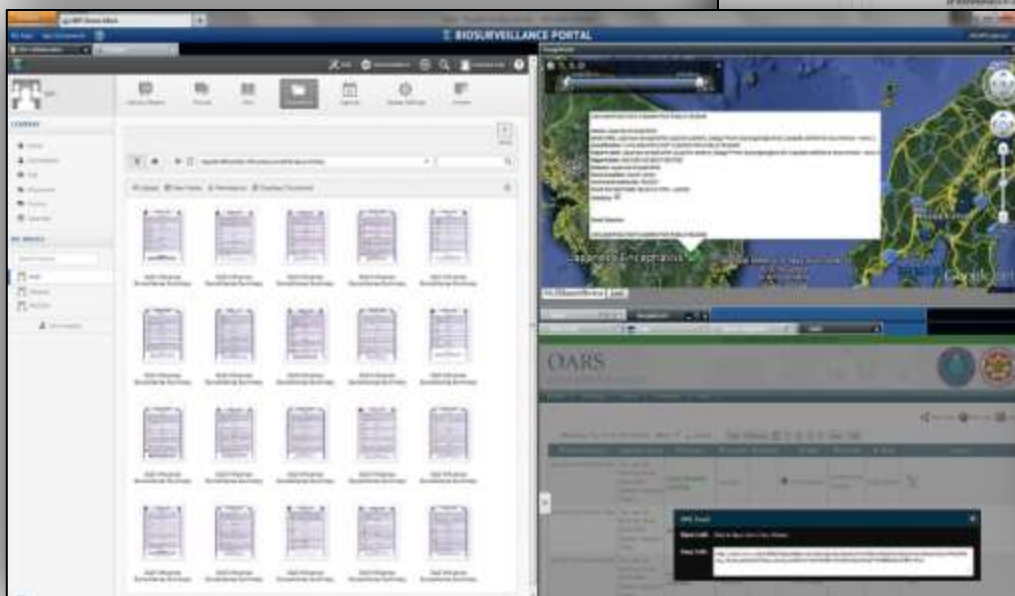
What is next for Information Systems?

Joint Information Environment (JIE)

A secure joint information environment, comprised of shared information technology (IT) infrastructure, enterprise services, and a single security architecture to achieve full spectrum superiority, improve mission effectiveness, increase security and realize IT efficiencies. JIE is operated and managed per Unified Command Plan (UCP) using enforceable standards, specifications, and common tactics, techniques, and procedures (TTPs).

The implementation of JIE requires unprecedented, dedicated support and cooperation to achieve this major Department objective. (DoD CIO memo dtd 26 Sept 2013)

Joint Information Environment (JIE)
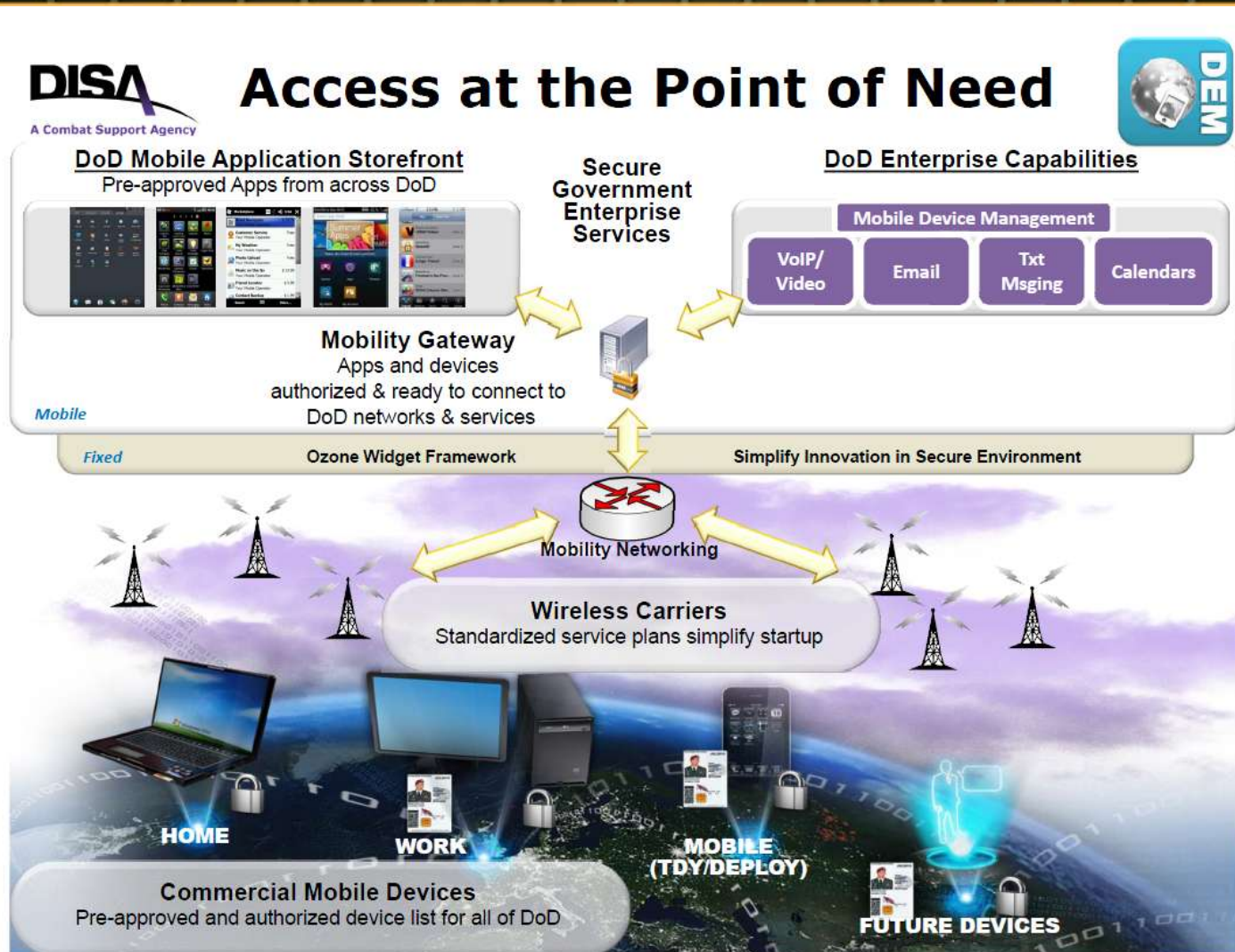
Capability Sets and Acquisition Strategies should be shaped to leverage the JIE/JOC

CBDP CBRN Information Systems

- **Objective: Provide an "End-to-End", easily accessible set of CBRN Enterprise capabilities through web services utilizing Service Oriented Architecture (SOA)**

- **This strategy will leverage:**
  - **CBRN Hazard Awareness and Understanding**
  - **Joint Information Environment**

- **Benefits:**
  - **Reduce total cost of ownership**
  - **Reduced cost of test**
  - **CBDP customers can access information resources from any authorized IT device from anywhere in the world**

Providing CBRN Capabilities via the JIE

Homeland Defense

DoD Command and Control

COCOMS

Medical Community

NBIC

Intelligence Community

Logistics Community

NATO

International Partners

CBRN IS Will Provide Discoverable CBRN Services and Data by Providing Enhanced Situational Awareness, Actionable Intelligence, and Decision Support

CBRN Sensor Data	Warning & Reporting	Disease Models	Biosurveillance Data	Hazard Prediction	Source Term Estimation	Sensor Fusion	Decision Support	Incident Management	Planning & Analysis	New Services

Content Discovery and Delivery	Collaboration	Security	Mediation	Service Management	Mapping

Reusable JIE Enterprise Services

Provide effective, reliable, robust capabilities that enable authorized users to connect with any device, anytime, from anywhere on the globe

Implementation Strategy

- **Promote S&T standards that allow for quicker technology updates and insertion into product lines**

- **CBRN Information Systems (CBRN IS) Enterprise will initially integrate appropriate JPEO-CBD products into a FoS framework (to begin with JWARN, JEM and BSP)**
  - **Align validated requirements into an enterprise approach**
  - **Utilize proven sustainable capabilities as building blocks**
  - **Align and expand to support the enterprise**

- **Utilize Agile Development within the IT Box Acquisition Strategy to provide for the spiral development and fielding of modular capability packages**
  - **Allows for better alignment and quicker delivery of S&T products into the program**
  - **Allows for accelerated development, and for fielding mature and high-priority capabilities**
  - **Allows greater flexibility for changing IT architecture and technology**

Create an expandable and adaptable enduring capability that will continuously leverage emerging technologies

Current Contracts

- ## JEM
  - **Northrop Grumman Mission Systems**
  - **General Dynamics IT**

- ## JWARN
  - **Northrop Grumman Missions Systems**

- ## BSP
  - **Johns Hopkins University-Applied Physics Lab via NAVSEA**
    - N00024-13-D-6400
    - PoP: TO SB 206 – ECD 31 May 2016

Contracting Opportunities

- **Q3FY16 – Biosurveillance Portal**
  - **Post IOC development**

- **Q2FY18 – Joint Effects Model**
  - **JEM Inc 2 Maintenance**

- **Q1FY19 – Joint Warning and Reporting Network**
  - **JWARN Inc 2 Maintenance**

Industry Challenges

- **Loss of contractor subject matter expertise during periods of limited funding**

- **Aging industrial base with modeling and simulation expertise**

- **Increased focus on Cybersecurity**

- **Cloud Hosting – move to Consolidated Data Centers**

- **Widget development and standards**

Program Points of Contact

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  - **brandon.flores@jpmis.mil**
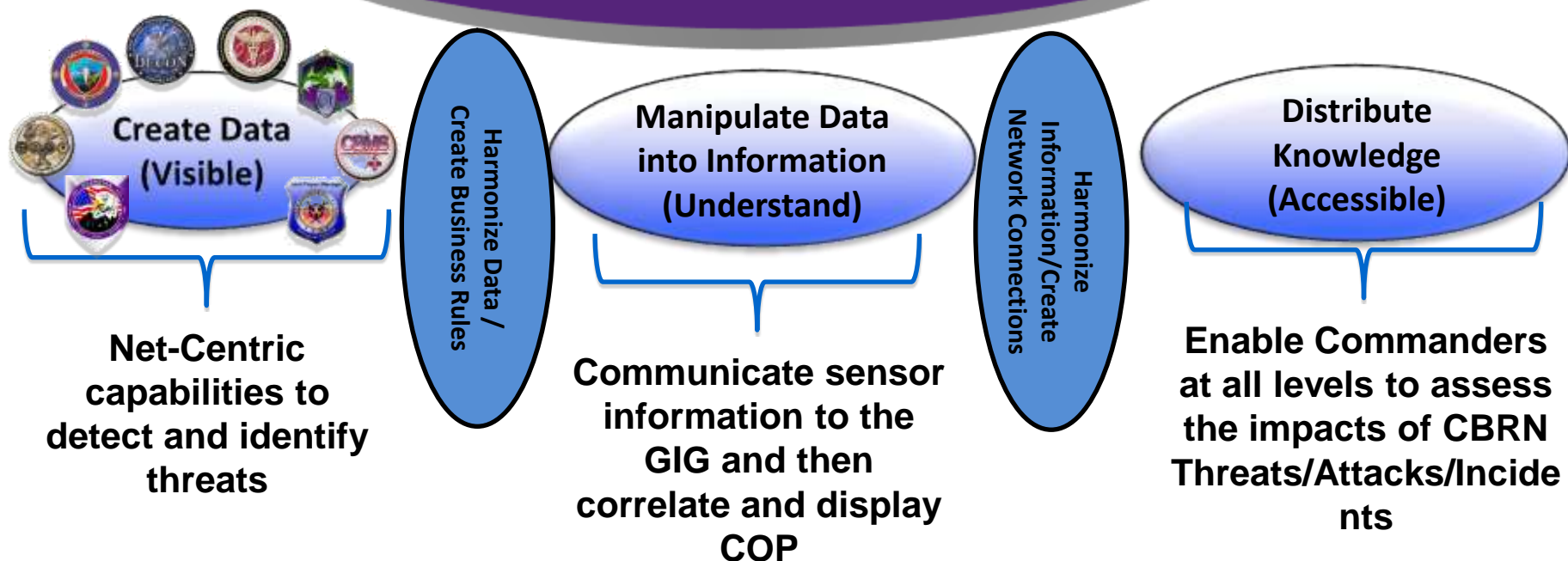- **Mrs. Lisa Riley, JPM IS Contracts Lead**
  - **lisa.riley@navy.mil**

Questions?

IM/IT Enterprise Strategy

Discoverable CBRN Services and Data Providing Enhanced Situational Awareness, Actionable Intelligence, and Decision Support

Create Data (Visible)

Harmonize Data / Create Business Rules

Manipulate Data into Information (Understand)

Harmonize Information/Create Network Connections

Distribute Knowledge (Accessible)

Net-Centric capabilities to detect and identify threats

Communicate sensor information to the GIG and then correlate and display COP

Enable Commanders at all levels to assess the impacts of CBRN Threats/Attacks/Incidents

IM/IT Enterprise is Centrally Executed

IM/IT Enterprise Construct

Service C2 Systems

Bio/Medical Surveillance Systems

Intel Systems

Local Users

CBRN External Communications Services

CBRN Command & Control Services

Decision Support Services

Hazard Modeling/Prediction Services

CBRN Data Visualization Services

Sensor Data Fusion Services

Sensor Data Collection Services

CBRN Sensors

Sensor Management Services

Intrusion Detection Services

CBRN Focused – All Hazards Capable